

## **Exploring the Career Pipeline: Gender Differences in Pre-Career Expectations**

### **Exploration du pipeline de la carrière : les différences entre les sexes dans les attentes préalables à la carrière**

### **Exploración de la conducción de la carrera: las diferencia entre los sexos en las expectativas previas a la carrera**

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Résumé de l'article

La théorie du pipeline suggère que l'augmentation du nombre de femmes dans les professions dominées par les hommes devrait conduire à davantage d'égalité sur le marché du travail. Cette perspective ne prend toutefois pas en considération les différences d'attentes entre les hommes et les femmes dans le pipeline qui peuvent faire en sorte de perpétuer les iniquités. Cette étude explore les différences dans le choix de la préparation à une carrière, les attentes face à la carrière, et les priorités en matière de carrière chez 23 413 jeunes, hommes et femmes, à partir d'un vaste échantillon d'étudiantes et d'étudiants canadiens de niveau postsecondaire prêts à entreprendre leur première carrière.

Nos résultats indiquent que même si les femmes accèdent de plus en plus à des professions où les hommes dominant, comme en sciences et génie et en administration des affaires, elles continuent d'avoir des attentes salariales plus faibles et de penser qu'il leur faudra plus de temps que leurs collègues masculins pour obtenir une promotion, quoique les jeunes femmes faisant carrière dans des professions masculines affichaient des attentes salariales plus élevées que celles faisant carrière dans des professions féminines.

De plus, les jeunes femmes affichent une préférence pour des priorités de carrière de type « beta » (par ex., rechercher un équilibre entre travail et famille), lesquelles sont associées à des salaires plus faibles, tandis que les jeunes hommes affichent une préférence de priorités de carrière de type « alpha » (par ex., construire une base financière solide), lesquelles sont associées à des salaires plus élevés. Notre étude montre également que même si les femmes accèdent en plus grand nombre à des professions masculines, cela ne conduit pas nécessairement à plus d'égalité pour elles sur le marché du travail. Nous en concluons que les iniquités sur le marché du travail sont déjà bien visibles dans le pipeline pré-carrière sous la forme d'attentes différenciées selon le sexe. Nous recommandons un certain nombre d'interventions susceptibles de s'attaquer à cet écart de différences entre les sexes et ainsi d'améliorer l'équité sur le marché du travail.

# Exploring the Career Pipeline: Gender Differences in Pre-Career Expectations

Linda Schweitzer, Eddy Ng, Sean Lyons and Lisa Kuron

**The pipeline theory suggests that increasing the number of women in male-dominated fields should lead to more equality in the labour market. This presumes that women and men in the pipeline expect comparable career outcomes. This study explores differences in academic preparation, career expectations, and career priorities among 23,413 Canadian post-secondary students. Our results indicate that women have lower salary expectations and expect longer times to promotion than men, and this gap is greater in male-dominated fields. Furthermore, women pursue career priorities that are associated with lower salaries. Gender explained the greatest amount of variance in expectations, regardless of field of study, academic achievement, or career goals. Our findings suggest that inequities in the labour market originate as gendered expectations within the pipeline. We offer recommendations to increase gender equality.**

**KEYWORDS:** salary and promotion expectations, career choice, career priorities

## Introduction

A decade into the 21<sup>st</sup> century, women continue to be disadvantaged in their careers relative to men. Despite government efforts to promote gender equality in the workplace (e.g., employment equity, pay equity, equal pay legislation), women continue to experience occupational segregation (Evans, 2002; Fortin and Huberman, 2002b), wage gaps (Fortin and Huberman, 2002b), fewer promotions (Yap and Konrad, 2009), and smaller wage increases (Beach, Finnie, and Gray, 2003). Government interventions are generally aimed at eliminating discriminatory pay and hiring practices on the employer side (i.e., demand side) of the employment relationship. However, it has been suggested that increasing the supply of women in the “pipeline” for various career fields (i.e., the supply-side)

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should result in proportionate increases in the number of women in these fields and promote greater gender equality in the workplace (Mariani, 2008). The conditions for such a supply-side change are evident, as the participation of women in the Canadian labour force has increased steadily since the turn of the 20<sup>th</sup> century with women now making up roughly 47 percent of all workers (Statistics Canada, 2009), similar to other developed nations (OECD, 2008).

However, the movement of more women into the pipeline has not resulted in great strides for women's careers. In Canada, university educated women earn only 68 percent of the salaries of equally qualified men (Canadian Labour Force Survey, 2008). With respect to career advancement, women represent 37 percent of all Canadian managers and that number drops to 22 percent for senior management (Statistics Canada, 2006). Recent research has concluded that women are disadvantaged when it comes to advancement at any level, although the disadvantage is greater at the lower levels (i.e., the "sticky floor" problem) than upper management (i.e., the glass ceiling) (Yap and Konrad, 2009). Unfortunately, even in studies that controlled for experience, education, industry and employer, among other things, gender-based inequities have not been fully explained (e.g., Jain *et al.*, 2010; Helfat, Harris, and Wolfson, 2006; Ragins, Townsend, and Mattis, 1998; Terjesen and Singh, 2007).

We contend that the pipeline hypothesis is insufficient as an explanation of gendered career gaps, as it does not consider the career expectations of those women within the pipeline, which impact their subsequent salary and promotion attainments (Hogue, Dubois, and Fox-Cardamone, 2010). Research has indicated that pre-career women tend to have lower career expectations than pre-career men (Hogue, Dubois, and Fox-Cardamone, 2010). If the women graduating from university, who are entering the pipeline, continue to have lower pay and promotion expectations than their male counterparts, then we might expect the gender gap in pay and promotion rates to persist, even as larger numbers of women enter male-dominated fields.

The present study extends previous work and adds to the literature by using a large sample of university students who are a part of the millennial generation. Studying this generation provides us with important evidence about the gender norms of today's young adults, which have been characterized as more egalitarian (Ng and Wiesner, 2007), with young women being more agentic and assertive and having higher self-esteem compared to women from previous generations (Twenge and Campbell, 2008). This suggests that the career expectations of today's young women should be more similar to those of their male counterparts than in previous generations.

Against this backdrop, the present study explores the expectations of young people in the pipeline, by documenting differences in the choice of academic preparation, career expectations, and attitudes among a large sample of men and women who are about to begin their careers. Exploring career expectations

at the beginning of the pipeline is an important step in helping us understand the supply-side impediments to career equity. In order to better address the perpetuation in gender gaps in pay and promotion expectations, it is crucial to know whether these gaps currently exist in the pre-career stage (i.e., early in the pipeline) or whether they are the result of experiences as men and women progress through their careers.

## Background and Hypotheses

### Pipeline Theory

The pipeline theory represents the flow of individuals from academic preparation to establishment in a given profession (Mariani, 2008). It is frequently assumed that a major reason for the underrepresentation of women in traditionally male-dominated fields is the lack of women preparing to enter those fields. To the extent that this is true, increasing the number of women in the pipeline will inevitably lead to increases in female representation in male-dominated fields (Mariani, 2008; Soe and Yakura, 2008). A critical mass of women should also, theoretically, change the all-male dynamic and result in more equality in pay and promotion opportunities (Konrad, Kramer, and Erkut, 2008; Soe and Yakura, 2008; Terjesen and Singh, 2007). Although this supply-side explanation does not account for discriminatory practices on the demand-side, it addresses a necessary precondition for gender equality in the labour market.

Much of the extant research employing the pipeline analogy has examined the flow of women into male-dominated career fields and has documented a “leaky pipeline” phenomenon, whereby women enter the pipeline but subsequently leave the career field due to such things as personal priorities, feelings of isolation, lack of support, and lack of self-esteem (Helfat, Harris, and Wolfson, 2006; Pell, 1996; Ragins, Townsend, and Mattis, 1998; White, 2004). Mariani (2008) suggested that the pipeline itself could be gendered, as men and women enter the pipeline under different circumstances, and differ in ways that will affect their future careers.

It appears that despite the greater representation of women in the workforce, the pipelines into certain career fields continue to be segregated by gender. Evetts (2000) argued that this can be attributed to systemic cultural and structural determinants. Prevalent historical gender-role stereotypes have dictated that certain jobs, such as management positions and science and engineering jobs, are considered to be “men’s work,” while child care, teaching, and clerical work are seen as “women’s work” (Koberg and Chusmir, 1991). Women historically pursued studies in the arts and social sciences, while men pursued studies in business, science, and engineering. Andres and Adamuti-Trache (2007) reported that despite increased university enrolment for women, students remain widely segregated by fields of study.

## Gendered Career Expectations within the Pipeline

Although gendered entry into the career pipeline explains some of the perpetual gaps between the career outcomes of men and women, it does not explain how women continue to be disadvantaged relative to men as they proceed through the pipeline. We posit that some portion of this gap is attributable to lower initial career expectations on the part of women.

There has been consistent evidence that the pre-career pay expectations of women are lower than those of men. In their study of undergraduate students in 1984, Major and Konar reported that women's salary expectations were 84 percent of those of men for starting salary and 54 percent for peak salary. Over the years, this difference seems to have improved somewhat, with differences of 93 percent (initial) and 73 percent (peak) reported in 1992 (Jackson, Gardner, and Sullivan, 1992) and 80 percent (initial) and 60 percent (peak) in 2002 (Heckert *et al.*, 2002). More recently, Hogue, Dubois, and Fox-Cardamone (2010) reported differentials of 92 and 67 percent, in initial and peak salary expectations, respectively.

There are a number of possible reasons why the pre-career expectations of men and women differ. First, there may be a conscious recognition by women (though not necessarily an acceptance) of persistent gender differences in the workplace. To the degree that young women are cognizant of gender-based pay gaps, the "glass ceiling" phenomenon, and inequities in the division of household labour and childcare responsibilities, this awareness may influence their own expectations.

Gender-based differences in career expectations may also stem from women's conscious decisions to pursue different career paths, as a reflection of their work values. Human capital theory suggests that women may choose to trade off salary and advancement for other more relational priorities, such as collegial and family-friendly work environments, and may consequently invest less in career capital, such as education and work experience, necessary for advancement (Firestone, Harris, and Lambert, 1999).

Another explanation relates to women's choice of career role models. Research suggests that individuals are more likely to base their career expectations on information provided from individuals of the same gender (Heckert *et al.*, 2002). Thus, the career expectations of women are likely to reflect current inequities in the workforce. Aycan (2004) reported that gender-role stereotyping and a lack of support influenced women's self-perceptions and ideals. Betz (2004) suggested that young women have historically experienced barriers in developing self-efficacy and their self-confidence and self-esteem diminish during their academic preparation. Women may also lack self-efficacy in male-dominated occupations because of the socialization process they experience (Clement, 1987; Pell, 1996). Furthermore, social dominance theory suggests that the advantage that men enjoy over women is justified because it is accepted that men have greater status and

power than women (Matlin, 1987) and therefore enjoy a “structural advantage” over women (Williams, 1992). On this basis, we hypothesize that pre-career women will have lower expectations for pay and advancement than men.

H1A: Women will report lower salary expectations than men.

H1B: Women will report lower promotion expectations (i.e., longer time to first promotion) than men.

The salary attainment between men and women also appears to go hand-in-hand with occupational segregation (Chaykoswki and Powell, 1999; Evans, 2002; Fortin and Huberman, 2002a). Women have been shown to choose careers and make career priorities that provide lower salaries than their male counterparts (Chaykowski and Powell, 1999). Men are also more likely than women to be employed in higher paying industries (e.g., IT) and in jobs with greater career potential (Joy, 2003). Furthermore, women experience greater barriers to entry (as a result of discrimination), and may be limited in terms of employment choices (e.g., employers who provide daycare, flexible hours) (Joy, 2003). Research also suggests that women fare better in terms of promotion in organizations that have a higher representation of women in their management cadres or on their boards (Cohen, Broschak, and Haveman, 1998; Terjesen and Singh, 2007). On this basis, we predict that women in female-dominated fields, which are likely to have higher proportions of female managers, will also report more positive promotion expectations than women in male-dominated fields.

H2A: Women in female-dominated fields will report more optimistic promotion expectations, compared to women in male-dominated fields.

Given that overall earnings in male-dominated fields will be higher than those in female-dominated fields, we posit that women will fare better in male-dominated fields. This is because women will stand to benefit from the “structural advantage” in male-dominated fields, and therefore form greater salary expectations than their counterparts in female-dominated fields.

H2B: Women in traditionally male-dominated fields will report higher salary expectations compared to women in female-dominated fields.

We further predict that gender differences (i.e., gaps) in career expectations will be smaller in female-dominated than in male-dominated fields.

H3A: The gender gap in salary expectations will be greater in male-dominated than in female-dominated fields.

H3B: The gender gap in promotion expectations will be greater in male-dominated fields than in female-dominated fields.

## Gender and Career Priorities

Gender-related differences in pay and promotion expectations may also be attributable to gendered differences in career priorities. Women have been found to place greater priority than men on family-life considerations, personal development opportunities, and pleasant working environments (Heckert *et al.*, 2002; Jackson, Gardner, and Sullivan, 1992). Sullivan and Mainiero (2007) posited that gender roles are related to prototypical “alpha” and “beta” careers. *Alpha* careers, which are typically pursued by men, are primarily work-focused, with relatively less emphasis on family and society. Historically, men, as breadwinners, have made career advancement a top priority and have focused on relationships only after having achieved career success. *Beta* careers, on the other hand, are pursued primarily by women and are focused on balance, with work being a secondary consideration. Women’s careers are characterized by compromises and adjustments, as they integrate relationships with their careers.

It is unclear, however, how these differences in career priorities may affect career expectations, with research providing conflicting results (Jackson, Gardner, and Sullivan, 1992; Heckert *et al.*, 2002). We propose the following regarding gender differences in career priorities:

- H4A: Women will be less likely than men to indicate career priorities related to *alpha* careers (i.e., financial gain, attain management status, start a business).
- H4B: Women will be more likely than men to indicate career priorities related to *beta* careers (i.e., work/life balance, contribute to society).

## Methodology

The data for this study were taken from the 2007 From Learning to Work study conducted by three strategic research firms, DECODE, Brainstorm Consulting, and Universum, commissioned by a consortium of large Canadian employers interested in better understanding the views of university students on jobs, organizations, careers and their perceptions of organizations. The data were collected through a national online survey distributed through fifty-eight universities and colleges in the spring of 2007. From this sample, we focused only on Canadian Millennial respondents who were studying for an undergraduate university degree.

The final sample included 23,413 respondents, representing 85 percent of the original data set and 2.9 percent of the Canadian undergraduate university population. The demographics of the sample are presented in Table 1. The median age of the respondents was about 22 years (ranging from 18 to 27). Our overall sample was representative of the Canadian post-secondary student population with respect to gender (61% women in the sample versus 60% for Canadian

university students). However, when broken down by area of major, there was an over-representation of women ranging from about 9 percent (business) to 13 percent (arts/social sciences).

**TABLE 1**  
**Sample Characteristics (N = 23,413)**

Variable	Women	Men	Total
Gender	61%	49%	–
Age	21.7 years (SD = 1.90)	21.8 years (SD = 2.05)	21.8 years (SD = 1.97)
<b>Major</b>			
Arts/Social Sciences	78%	22%	19%
Business	64%	36%	32%
Science/Engineering	52%	48%	50%

Note: column does not sum to 100% due to rounding.

## Measures

*Salary expectations* were assessed by two separate questions asking respondents to enter the dollar amount corresponding to the salary that they expected to earn in their first job immediately following their graduation from university and the salary that they expected to earn five years following graduation.

*Promotion expectations* were assessed using a single question, asking respondents to indicate how soon they would expect to be promoted after they have found employment after graduation.

*Career priorities* were assessed by asking respondents to select up to three priorities that they wish to achieve within three years of graduation. For this study, we chose five items which represent alpha and beta career priorities. Alpha goals included: *build a sound financial base*; *reach a managerial level*; and *start a business*. Beta goals included: *balance personal life and career*; and *contribute to society*.

Because all of the measures employed in this study were gathered via the same self-reporting questionnaire, we employed Harman's one-factor test (Podsakoff and Organ, 1986), to ensure that common method variance was not problematic. All of the items are entered into a principle components factor analysis to generate an unrotated factor solution. If substantial common method variance is present, either a single factor will emerge, or one general factor will account for most of the covariance in the independent and criterion variables (Podsakoff and Organ, 1986). The results indicated that the variables loaded on four unique factors with eigenvalues of 1.0 or greater, each explaining between 12.5 and 22.5 percent of the variance. We therefore deemed that common method variance was not a significant concern.



## Data Analysis

Two-way analyses of variance (ANOVAs) were performed on the continuous variables (i.e., salary and promotion expectations) with gender and field of study as the independent variables. In order to control for the effects of achievement motivation, we also included grade-point average (GPA) as a control variable. For the set of five career priorities, we conducted logistic regressions to determine the relationship with gender and field of study. Finally, we employed linear regression analysis to investigate the relationship between gender, area of study, career priorities and career expectations, with GPA as a control variable. To determine the relative contribution of each variable in the regressions, we employed Thomas, Hughes, and Zumbo's (1998) measure of relative importance (calculated for each variable as the proportion of  $R^2$  attributed to the standardized regression coefficient times the correlation coefficient of each variable with the dependent variable:  $\beta_j \rho_j / R^2$ ).

Because our very large sample makes it likely that findings with low practical significance may still be statistically significant at the  $p < .05$  level, we used conservative significance levels of 0.01 for all tests.

## Results

### Salary and Promotion Expectations

Tables 2 and 3 display the mean initial salary expectations and five-year salary expectations (respectively) for women and men in the different fields of study. Both were normally distributed with means of \$42,947 ( $SD = 15,091$ ) for initial salary expectations and \$69,612 ( $SD = 34,095$ ) for five-year salary expectations.

**TABLE 2**  
**Initial Salary Expectations (N = 21,887)**

Major	Women <i>M</i> ( <i>SD</i> )	Men <i>M</i> ( <i>SD</i> )	Total <i>M</i> ( <i>SD</i> )	Salary Gap (As a % of Men's Salaries)
Arts/Social Sciences	\$36,336 (12,870)	\$38,455 (14,136)	\$36,806 (13,189)	-5.5%
Business	\$39,635 (13,027)	\$43,825 (13,472)	\$41,192 (13,348)	-9.6%
Science/Engineering	\$43,351 (15,686)	\$49,556 (15,425)	\$46,366 (15,865)	-12.5%
Total	\$40,421 (14,462)	\$46,727 (15,223)	\$42,947 (15,091)	-13.5%

**TABLE 3**  
**Salary Expectations after 5 years (N = 21,668)**

Major	Women <i>M</i> ( <i>SD</i> )	Men <i>M</i> ( <i>SD</i> )	Total <i>M</i> ( <i>SD</i> )	Salary Gap (As a % of Men's Salaries)
Arts/Social Sciences	\$56,973 (25,743)	\$62,926 (32,900)	\$58,297 (27,602)	-9.5%
Business	\$65,536 (31,657)	\$80,316 (40,329)	\$71,028 (35,847)	-18.4%
Science/Engineering	\$67,142 (32,666)	\$79,067 (34,855)	\$72,935 (34,268)	-15.1%
Total	\$64,157 (31,061)	\$77,769 (36,705)	\$69,612 (34,095)	-17.5%

Significant main effects on initial salary expectations were evident for gender ( $F(1, 21821) = 331.70, p < 0.001, \eta^2 = 0.015$ ), field of study ( $F(2, 21821) = 526.53, p < 0.001, \eta^2 = 0.046$ ) and GPA ( $F(1, 21821) = 100.32, p < 0.001, \eta^2 = 0.005$ ). The women in this study reported initial salary expectations that were 86.5 percent of those of the men. Significant main effects of gender, fields of study and GPA on five-year salary expectations were also observed ( $F(1, 21601) = 410.92, p < 0.001, \eta^2 = 0.019$ ),  $F(2, 21601) = 1867.33, p < 0.017$ ) and ( $F(1, 21601) = 41.41, p < 0.001, \eta^2 = 0.002$ ), respectively. Similar to initial salary expectations, women reported a gap of 17.5 percent in five-year salary expectations compared to men.

There were significant interactions between gender and fields of study on both initial salary expectations ( $F(2, 21821) = 25.85, p < 0.001, \eta^2 = 0.002$ ) and five-year salary expectations ( $F(2, 21601) = 16.75, p < 0.001, \eta^2 = 0.002$ ). We therefore performed separate ANOVAs on both salary variables for each of the fields of study, while controlling for GPA.

Hypothesis 1a was supported, as women reported lower salary expectations than men, both for their initial salary and their salary after five years of working, regardless of field of study. Gender was significantly related to initial salary expectations in each of the three fields: business ( $F(1, 6904) = 173.88, p < 0.001, \eta^2 = 0.025$ ), arts/social sciences ( $F(1, 4072) = 19.57, p < 0.001, \eta^2 = 0.005$ ) and science/engineering ( $F(1, 10845) = 447.74, p < 0.001, \eta^2 = 0.040$ ). The expected salary gap was most pronounced for students in science/engineering (gap of 12.5%), followed by business (9.6%), and by arts/social sciences (5.5%). An identical pattern was observed for five-year salary expectations, as gender was significant for each of the three majors: business ( $F(1, 6850) = 283.18, p < 0.001, \eta^2 = 0.041$ ), arts/social sciences ( $F(1, 4025) = 32.63, p < 0.001, \eta^2 = 0.008$ ) and

science/engineering ( $F(1, 10790) = 336.12, p < 0.001, \eta^2 = 0.031$ ). Women's five-year salary expectations were lower than men's for all three fields of study and the salary gaps were most pronounced for science/engineering and for business (15.1% and 18.4% respectively), and least pronounced for arts/social sciences (9.5%). Thus, hypothesis 3a was supported, as gender gaps in salary expectations were largest in traditionally male-dominated professions.

Table 4 shows the time (in months) in which students indicated that they expect to be promoted. The average expectation for time to first promotion was 15.1 months ( $SD = 7.22$ ). There were significant main effects of gender ( $F(1, 21803) = 180.47, p < 0.001, \eta^2 = 0.008$ ) and field of study ( $F(2, 21803) = 20.78, p < 0.001, \eta^2 = 0.002$ ). There were no significant interactions between gender and fields of study. In general, women expected a longer wait for their first promotion compared to men (1.7 months longer on average), confirming hypothesis 1b. However, since there were no significant interactions between gender and field of study, hypotheses 2a and 3b were not supported.

TABLE 4

**Expectations for Promotion (How soon do you expect to be promoted, in months)**  
( $N = 21,668$ )

Major	Women <i>M (SD)</i>	Men <i>M (SD)</i>	Total <i>M (SD)</i>	Difference (W-M in months)
Arts/Social Sciences	16.0 (7.12)	14.6 (7.14)	15.7 (7.15)	1.4
Business	15.2 (6.94)	13.7 (6.90)	14.7 (6.96)	1.5
Science/Engineering	16.1 (7.34)	14.2 (7.27)	15.2 (7.36)	1.9
Total	15.8 (7.17)	14.1 (7.15)	15.1 (7.21)	1.7

### Gender and Career Priorities

Table 5 presents the response frequencies for the career goals that the students hope to achieve within the first three years after graduation. Sixty percent of the respondents chose *balance personal life and career* as a goal that they would like to achieve. The step-wise logistic regression results indicated no significant interaction between gender and fields of study ( $\Delta\chi^2(2, 23413) = 4.568, p = 0.102$ ). The model containing gender and academic field fit the data adequately ( $\chi^2(4, 23413) = 4.568, p = 0.335$ ), but explained a very small proportion of the variance (Nagelkerke  $R^2 = .019$ ). Field of study was also not significant in the final model. The results (Table 6) indicate that women in all fields were 76 percent more likely than men to choose *balance personal life and career* as priorities (odds ratio = 1.757,  $p < 0.001$ ).

**TABLE 5**  
**Career Priorities (N = 23,049)**

Major Career Goal	Arts/Social Sciences			Business			Science/ Engineering			All Majors		
	Women	Men	Total	Women	Men	Total	Women	Men	Total	Women	Men	Total
Balance personal life and career	63%	53%	61%	66%	53%	61%	64%	52%	58%	64%	53%	60%
Contribute to society	37%	29%	35%	26%	16%	22%	30%	20%	25%	30%	20%	26%
Build a sound financial base	27%	28%	27%	34%	41%	37%	27%	30%	28%	7%	33%	23%
Reach a managerial level	4%	6%	4%	14%	17%	15%	4%	8%	6%	5%	10%	31%
Start a business	5%	6%	5%	7%	17%	11%	4%	11%	7%	5%	12%	8%

Twenty-six percent of the respondents also emphasized making a *contribution to society* as an important career priority. Gender, field of study and the interaction between them were all significant. We therefore performed logistic regression analyses for each field and found that women in every field of study were more likely than men to want to *contribute to society* in their careers (Table 6). Women in business were most likely (85% more likely than men) to indicate that they want to *contribute to society*, followed by women in science/engineering (72%), and women in arts/social science (26%).

Thirty-one percent of respondents chose *building a sound financial base* as a career priority. Gender, major and the interaction between gender and major were all significant. Separate logistic regressions for each field of study (Table 6) indicate that in each academic field, women were less likely than men to prefer *building a sound financial base*. Women in business were least likely (26% less than men) to mention *building a sound financial base*, followed by women in science/engineering (15%), and women in arts/social sciences (4%).

Only eight percent of the respondents indicated reaching a managerial level as a career priority. Logistic regression results indicated that gender, field and the interaction between gender and field were all significant. Separate logistic regressions also indicated that women in science/engineering were least likely (54% less than men) to want to reach a managerial level, followed by women in arts/social sciences (38%), and women in business (21%).

Similarly, only eight percent of the respondents wanted to start a business. Logistic regression results indicated that, again, gender, field and the interaction between gender and field were all significant. Separate regression analyses for each field indicated that women in science/engineering were least likely to choose start a business (69% less likely than men), followed by women in business (61%

**TABLE 6**  
**Logistic Regression – Career Goals (*N* = 23,049)**

Career Goal	Unstandardized Coefficient <i>B</i>	Standard Error <i>SE(B)</i>	Odds Ratio <i>e<sup>B</sup></i>
<b>Balance personal life and career</b>			
Gender	0.563**	0.050	1.757
Major (Arts/Social Sciences)	0.036	0.076	1.036
Major (Science/Engineering)	-0.004	0.047	0.996
<b>Contribute to society</b>			
WOMEN			
Major (Arts/Social Sciences)	0.786**	0.090	2.195
Major (Science/Engineering)	0.288**	0.063	1.334
MEN			
Major (Arts/Social Sciences)	0.510**	0.049	1.665
Major (Science/Engineering)	0.211**	0.044	1.235
<b>Build a sound financial base</b>			
WOMEN			
Major (Arts/Social Sciences)	-0.619**	0.083	0.538
Major (Science/Engineering)	-0.501**	0.049	0.606
MEN			
Major (Arts/Social Sciences)	-0.362**	0.050	0.696
Major (Science/Engineering)	-0.368**	0.043	0.692
<b>Reach a managerial level</b>			
WOMEN			
Major (Arts/Social Sciences)	-1.149**	0.147	0.317
Major (Science/Engineering)	-0.865**	0.073	0.421
MEN			
Major (Arts/Social Sciences)	-1.399**	0.099	0.247
Major (Science/Engineering)	-1.458**	0.082	0.233
<b>Start a business</b>			
WOMEN			
Major (Arts/Social Sciences)	-1.134**	0.144	0.322
Major (Science/Engineering)	-0.535**	0.067	0.585
MEN			
Major (Arts/Social Sciences)	-0.542**	0.100	0.582
Major (Science/Engineering)	-0.759**	0.089	0.468

\*Note: Reference categories: Gender Male, Major Business

\*\**p* < 0.01

less likely than men), and women in arts/social sciences (30%). Overall, our results support hypotheses 4a and 4b.

Finally, results of the linear regression analyses (Table 7) show that gender explains the greatest amount of variance in salary expectations in all fields (both initial and five-year expectations). For business students, each alpha career goal (i.e., build a

sound financial base, reach a managerial level, and start a business) was associated with increased salary expectations, while each beta career goal (i.e., balance personal life and career, and contribute to society) was associated with decreased salary expectations. This pattern also held for science/engineering students, with the exception of building a sound financial base, which was not significant. For arts/social sciences students, only balance personal life and career had a significant, and negative, relationship with salary expectations. It should be noted that although the F-statistics were significant for all regressions, the variances explained in each regression were very low, but were in keeping with other research investigating gender differences in salary expectations (Daymont and Andrisani, 1984).

**TABLE 7**  
**Career Goals and Career Outlook - Linear Regression Results**

Regression	Initial Salary Expectations			5-Year Salary Expectations		
	B	$\beta$	% of $R^2$	B	$\beta$	% of $R^2$
<b>Business/Commerce</b>	$_{adj}R^2 = 0.048$ $F(7, 6897) = 49.205^{**}$			$_{adj}R^2 = 0.078$ $F(7, 6822) = 81.856^{**}$		
Female	-3526.0**	-.128	40.5	-12030.3**	-.163	41.6
GPA	1815.4**	.082	11.5	5065.5**	.085	7.1
Balance personal life and career	-1132.1**	-.041	6.0	-5445.9**	-.074	10.9
Contribute to society	-2154.6**	-.067	13.9	-9053.0	-.104	19.1
Build a sound financial base	2074.9**	.075	13.6	4554.6**	.062	6.2
Reach a managerial level	1203.7**	.032	3.1	2676.6	.027	1.6
Start a business	2646.2**	.062	10.6	9622.8**	.084	12.4
<b>Arts/Social Sciences</b>	$_{adj}R^2 = 0.012$ $F(7, 4069) = 6.771^{**}$			$_{adj}R^2 = 0.023$ $F(7, 4069) = 13.433^{**}$		
Female	-1938.9**	-.061	33.9	-5066.8**	-.076	29.6
GPA	893.3**	.042	12.8	-604.0	-.014	1.3
Balance personal life and career	-1390.5**	-.051	25.1	-4250.9**	-.075	27.6
Contribute to society	-1012.2	-.037	12.8	-3700.6**	-.064	20.7
Build a sound financial base	164.4	.006	0.1	-197.7	-.003	0.0
Reach a managerial level	466.0	.007	0.7	2622.6	.019	2.5
Start a business	2055.0	.033	10.4	7446.2**	.058	17.8
<b>Science/Engineering</b>	$_{adj}R^2 = 0.052$ $F(7, 10833) = 85.404^{**}$			$_{adj}R^2 = 0.048$ $F(7, 10741) = 76.95^{**}$		
Female	-5688.3**	-.179	67.3	-10417.7**	-.153	55.4
GPA	1734.7**	.075	8.4	2378.6**	.048	3.5
Balance personal life and career	-1175.1**	-.0037	4.8	-5225.9**	-.076	17.0
Contribute to society	-1397.5**	-.038	4.9	-4306.3**	-.055	9.3
Build a sound financial base	786.4	.022	1.0	-1068.7	-.014	0.5
Reach a managerial level	4196.4**	.061	9.6	5886.4**	.04	5.2
Start a business	2317.4**	.037	4.6	6722.3**	.05	8.5

\*\*p < 0.01

## Discussion

Previous research concerning the supply-side concept of the career pipeline has argued that increasing the number of women in the pipeline for male-dominated careers should create a “tipping point” at which women will have sufficient numbers to demand salary equality. Our results suggest that although women are entering the pipeline for male-dominated fields in greater numbers, they have lower expectations for pay (both initial and five-year) and promotion than their male counterparts even in this pre-career phase, regardless of their chosen field of study and their aptitude as measured by GPA. Gender explained the greatest amount of variance in salary expectations in all fields of study, which supports our overall hypothesis that the pipeline is gendered. Since higher pay expectations have been linked to more active negotiation strategies and subsequently to higher starting salaries (Kaman and Hartel, 1994), young women continue to be at a disadvantage relative to young men, even before they enter their working lives. Because differences in starting salaries are the largest contributor to overall gender differences in salaries (Gerhart, 1990), women’s lower salary expectations have lasting repercussions for gender pay inequality.

Our findings suggest that pay expectations are partially attributable to one’s chosen field of study and to the career priorities that one pursues. Students in science/engineering and business expect higher salaries on average than those in arts/social sciences. This is important, as Statistics Canada data (2005) have shown that women continue to segregate in lower-paying fields such as the arts/social sciences during their academic preparation, and consequently report lower salary expectations. If more men are concentrated in these higher paying fields, then it follows that men, in general, will continue to enjoy higher salaries than women. Male-dominated fields tend to pay more because men enjoy a structural advantage over women, and men bring that advantage with them regardless of fields. Our data also suggest that women in male-dominated fields intend to take advantage of this structural advantage, as they have higher salary expectations than women in female-dominated fields.

Our data further indicate that young women are more likely to pursue *beta* career priorities (i.e., balance personal life and career, and contribute to society), while young men are more likely to pursue *alpha* career priorities (i.e., build a sound financial base, reach a managerial level, and start a business), at least in the short term. Because alpha career priorities are associated with increased salary expectations, while beta career priorities are associated with decreased salary expectations, women appear to be disadvantaged financially for pursuing their desired priorities. In other words, our findings suggest that pre-career individuals, particularly women, adjust their salary expectations downward in exchange for

greater work/life balance. This is true even for those entering male-dominated fields, which means that the pursuit of beta career priorities may negate some of the structural gains that women might enjoy relative to women in female-dominated careers. It is somewhat concerning that, even when differing career priorities are controlled for, women still expect lower salaries than men. This suggests that women who pursue traditionally female beta career goals demonstrate a “double reduction” in their salary expectations relative to traditionally alpha-career men.

There are multiple possible explanations for these findings. It may be that young women’s lower expectations are due to lower self-confidence and self-efficacy necessary in self-evaluations for salary negotiations and on-the-job performance (Ng and Sears, 2010). The problem may also lie with the reference group from which women obtain information, as women tend to rely on other women for salary information (Heckert *et al.*, 2002). Women may also form their expectations based on historical gender-role stereotyping and discrimination on the part of the labour market. Thus, even if women enter the labour market with the same credentials as men, they already form expectations that the labour market will value them less (Joy, 2003) and such expectations may be reinforced by the discrimination they experience in the workforce (Major and Konar, 1984).

## Conclusion

### Implications

The results of our study have important implications for universities and colleges, employers and governments. Our findings suggest that young women approach their first post-university/college jobs with lower pay and promotion expectations than their male counterparts, putting them at a relative disadvantage as they negotiate their initial salaries. Women may be further disadvantaged relative to men by their less aggressive approach to negotiation (Babcock and Laschever, 2003). If women enter their first job negotiation with both lower initial expectations, and a negotiating approach that results in greater compromise on their part, they will likely end up behind relative to their male counterparts. University and college professors and career counsellors should make it a priority to provide students, both male and female, with accurate information regarding the actual salaries and expected promotion rates for university graduates in their field. Presenting undergraduate students with statistical data concerning the gendered salary gap provides an opportunity to challenge the assumptions upon which salary expectations are formed and may empower young women to think differently about the way they value themselves relative to their male colleagues. All students, and in particular women, would also benefit from training on how to negotiate a starting salary.



Farther along the pipeline, gender-specific mentoring could be an effective tool to help young women improve their existing career outlooks. Women in senior positions can act as role models for young women and demonstrate that they can break the “glass ceiling” into senior management or break into male-dominated fields such as science/engineering. Mentors can also provide access to important networks and crucial information to young women who would otherwise have limited access to decision-makers in organizations. Extant literature has shown that individuals with mentors receive more promotions, have more career mobility, and advance at a faster rate than those without mentors (cf. Ragins, Townsend, and Mattis, 1998). Additionally, mentors can help young women build self-esteem and confidence, negotiate a fair starting salary, and establish themselves during their early career years. However, given the existing gender-wage gap, it is also possible that having a female mentor may provide female protégés with a reflection of past and present inequities in the workplace and thus negatively affect the career choices and expectations of their protégés. Young women would therefore benefit from selecting mentors who encourage them to challenge the gendered salary and promotion gap, rather than acquiescing.

Our findings indicate that the gender gap in pre-career salary expectations is greater in traditionally male-dominated fields, suggesting that efforts to raise the salary expectations of pre-career women should be targeted at these fields. Educators and career counsellors should continue to encourage young women to pursue careers that have been traditionally dominated by men, and government programs should continue to address the underrepresentation of women in such fields. An example of such a program is the National Sciences and Engineering Research Council of Canada’s “Chairs for Women in Science and Engineering” program, which seeks to increase the participation of women in science and engineering fields and to provide role models for girls who aspire to a career in such fields. Employers, professional associations and education institutions can also help by providing programs that enable young women to interact with established professional women who can serve as role models and mentors, giving them a tangible example of a successful woman in their field.

Our results also suggest that young women continue to choose career priorities that are associated with lower salaries. In order to reduce inequities in pay and promotion that result from such choices, it is necessary to question whether the distinction between alpha and beta career patterns is a viable occupational consideration. Employers and professional associations, with encouragement from government programs, should actively investigate whether occupational standards and practices are creating an unnecessary trade-off between work and life interests. If so, efforts should be made to develop alternative career path

options that allow both women and men to pursue any occupation they choose without fear that their family life will suffer as a result. Increasing the number of women in male-dominated fields, as suggested above, can also tip the balance of power and change the dynamics and culture of an organization. For example, the “work-hard, play-hard” environment that is endemic to male-dominated fields may present challenges for women with family responsibilities, and may cause women to self-select out of male-dominated professions. Employers should therefore work to identify and remove structural and artificial barriers that prevent women from entering male-dominated fields or progressing into senior management levels. Employers should also ensure that provision of work/life balance does not come at the expense of lower salaries. In the long-run, having a greater number of women at senior management will also lead to greater gender equity in the workplace.

At a broader level, policy makers should continue to work to ensure that young men and women face equal treatment as they negotiate the salaries for their first jobs. Although employers are prohibited from discriminating on the basis of gender with respect to access to corporate programs and benefits, research has indicated there are in fact gender differences with respect to what is offered during the hiring process (Zeytinoglu, Cooke, and Mann, 2010). Current human rights, pay equity and employment equity legislation aims to address inequities through reporting and complaint-driven systems. However, once hired, young women may lack knowledge of the salaries offered to comparably qualified men, and may therefore be unaware that a discrimination claim is merited. They may also lack the means or the will to file discrimination complaints early in their careers and may fear reprisal or stigmatization. In short, the legislation that is in place to address gender inequalities in the workplace does not address the specific issue of inequity in initial offers. More could be done to ensure that the initial salaries that are offered to young women are equal to those of their male counterparts.

### **Limitations and Directions for Future Research**

A few limitations should be noted to put our findings into perspective. First, the data for this study were obtained from a secondary source, and, as such, we were limited to the set of variables collected and the measures employed. Future research, employing established measures with multiple items and a broader set of variables should be considered. In particular, it would be useful to control for: demographic variables such as ethnicity, socio-economic status and parents’ occupations; human capital variables, such as prior work experience and perceived ability; personality variables, such as self-esteem, self-efficacy, and disposition; and labour market variables such as region, unemployment rates and respon-

dents' knowledge of the salary outlook for their chosen fields. Future research could also employ a broader set of expectation measures, such as longer-term career goals (e.g., starting a business, becoming professionally recognized) and expectations about non-salary compensation, such as employment benefits, work environment and other perks. Finally, more established measures of the constructs relevant to this study, such as Sullivan *et al.*'s (2009) measure of the differing career foci of men and women can be utilized.

Second, like most cross-sectional studies, the present research would benefit from a longitudinal design that allows the researchers to investigate changes in career expectations over time and actual salary outcomes once young workers leave the pipeline and enter their first career jobs. A promising area for longitudinal research concerns the effectiveness of various pre-career interventions in reducing the gendered gap in career expectations. It would be interesting to investigate whether pre-career counselling, interactions with career mentors, and the presentation of relevant labour market data would cause a change in young women's pre-career pay and promotion expectations. It would be highly useful to investigate the nature and impact of mentor-protégé relationships. In particular, it would be interesting to determine what role established female mentors might play in influencing the expectations of pre-career female protégés. It would be useful to know whether the experiences and expectations of the mentor have an impact on those of the protégé. Research could also investigate gender differences in the mentor-protégé relationship to determine if male and female mentors have differing approaches towards their male and female protégés.

Third, the quantitative nature of our secondary data source prohibited us from conducting qualitative follow-up research with the respondents in order to explore possible explanations for the findings. Future research should investigate young women's awareness of the pay expectation gap and their reaction to it. It would be useful to determine the degree to which young women are surprised and affected by the gendered gap in expectations.

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## SUMMARY

### Exploring the Career Pipeline: Gender Differences in Pre-Career Expectations

The pipeline theory suggests that increasing the number of women in male-dominated fields should lead to more equality in the labour market. This perspective does not account for differences in the expectations of men and women within the pipeline, which may serve to perpetuate inequities. This study explores the differences in the choice of academic preparation, career expectations, and career priorities of 23,413 pre-career men and women using a large sample of Canadian post-secondary students who are about to embark on their first careers. Our results indicate that, although women are increasingly entering male-dominated fields such as science/engineering and business, they continue to have lower salary expectations and expect a longer time to promotion than their male counterparts. That said, young women in male-dominated fields reported higher salary expectations than those in female-dominated fields.

Additionally, young women indicated a preference for *beta* career priorities (e.g., work/life balance) that are associated with lower salaries, while men indicate a preference for *alpha* career priorities (e.g., build a sound financial base) that are associated with higher salaries. Our study also found that although women are entering the pipeline for male-dominated fields in greater numbers, it does not necessarily result in more equality for women in the labour market. We conclude that the inequities in the labour market are evident within the pre-career pipeline in the form of gendered expectations. We recommend a number of interventions that might address the expectation gap and therefore improve gender equity in the labour market.

KEYWORDS: salary and promotion expectations, career choice, career priorities

## RÉSUMÉ

### Exploration du pipeline de la carrière : les différences entre les sexes dans les attentes préalables à la carrière

La théorie du pipeline suggère que l'augmentation du nombre de femmes dans les professions dominées par les hommes devrait conduire à davantage d'égalité sur le marché du travail. Cette perspective ne prend toutefois pas en considération les différences d'attentes entre les hommes et les femmes dans le pipeline qui peuvent faire en sorte de perpétuer les iniquités. Cette étude explore les différences dans le choix de la préparation à une carrière, les attentes face à la carrière, et les priorités en matière de carrière chez 23 413 jeunes, hommes et femmes, à partir d'un vaste échantillon d'étudiantes et d'étudiants canadiens de niveau postsecondaire prêts à entreprendre leur première carrière.

Nos résultats indiquent que même si les femmes accèdent de plus en plus à des professions où les hommes dominent, comme en sciences et génie et en administration des affaires, elles continuent d'avoir des attentes salariales plus faibles et de penser qu'il leur faudra plus de temps que leurs collègues masculins pour obtenir une promotion, quoique les jeunes femmes faisant carrière dans des professions masculines affichaient des attentes salariales plus élevées que celles faisant carrière dans des professions féminines.

De plus, les jeunes femmes affichent une préférence pour des priorités de carrière de type « beta » (par ex., rechercher un équilibre entre travail et famille), lesquelles sont associées à des salaires plus faibles, tandis que les jeunes hommes affichent une préférence de priorités de carrière de type « alpha » (par ex., construire une base financière solide), lesquelles sont associées à des salaires plus élevés. Notre étude montre également que même si les femmes accèdent en plus grand nombre à des professions masculines, cela ne conduit pas nécessairement à plus d'égalité pour elles sur le marché du travail. Nous en concluons que les iniquités sur le marché du travail sont déjà bien visibles dans le pipeline pré-carrière sous la forme d'attentes différenciées selon le sexe. Nous recommandons un certain nombre d'interventions susceptibles de s'attaquer à cet écart de différences entre les sexes et ainsi d'améliorer l'équité sur le marché du travail.

**MOTS CLÉS :** attentes envers les salaires et les promotions, choix de carrière, priorités de carrière

## RESUMEN

### Exploración de la conducción de la carrera: las diferencia entre los sexos en las expectativas previas a la carrera

La teoría de la conducción sugiere que la aumentación del número de mujeres en las profesiones dominadas por los hombres debería conducir a una mayor igualdad en el mercado de trabajo. Sin embargo, esta perspectiva no toma en considera-

ción las diferencias de expectativas entre hombres y mujeres en la conducción que pueden actuar de manera a perpetuar las desigualdades. Este estudio explora las diferencias en las opciones de preparación de una carrera, las expectativas respecto a la carrera y las prioridades en materia de carrera por 23 413 jóvenes, hombres y mujeres, a partir de una vasta muestra de estudiantes canadienses de nivel post-secundario listos a emprender su primera carrera.

Nuestros resultados indican que incluso si las mujeres acceden cada vez más a profesiones donde los hombres dominan, como las ciencias y la ingeniería y la administración de negocios, ellas continúan teniendo expectativas salariales más bajas y a pensando que necesitaran más tiempo que sus colegas masculinos para obtener una promoción, aunque las jóvenes que hacen carrera en las profesiones masculinas muestran expectativas salariales más elevadas que aquellas que hacen carrera en las profesiones femeninas.

Es más, las jóvenes muestran una preferencia por las prioridades de carrera de tipo « beta » (por ex., buscar un equilibrio entre trabajo y familia), las cuales son asociadas a salarios más bajos, mientras que los varones jóvenes muestran una preferencia de prioridades de carrera de tipo « alpha » (por ex., construir una base financiera sólida), las cuales son asociadas a salarios más elevados. Nuestro estudio muestra igualmente que si las mujeres acceden en mayor cantidad a las profesiones masculinas, esto no conduce necesariamente a mayor igualdad para ellas en el mercado de trabajo. Concluimos que las desigualdades en el mercado de trabajo son ya bastante visibles en la conducción pre-carrera bajo la forma de expectativas diferenciadas según el sexo. Se recomienda un cierto número de intervenciones susceptibles de atacarse contra este margen de diferencias entre los sexos y así mejorar la igualdad en el mercado de trabajo.

**PALABRAS CLAVES:** expectativas de salarios y de promoción, opciones de carrera, prioridades de carrera